

A BOX INCLUDING A HINGE HAVING A LOOP ELEMENT AND A HOOK ELEMENT

[0001] This application claims the benefit of French Application No. 03 01267 filed on February 4, 2003 and U.S. Provisional Application No. 60/449,608 filed on February 26, 2003, the entire disclosures of which is incorporated by reference herein.

Field of Invention

[0002] The present invention relates to boxes, and more particularly, but not exclusively, to boxes for containing applicators and/or cosmetics.

Background

[0003] Such boxes generally comprise a base portion and a lid connected to the base portion by a hinge. The hinge may include a metal pin.

SUMMARY OF THE INVENTION

[0004] Exemplary embodiments of the invention provide a box comprising a hinge that comprises a first element fixed to a base portion and a second element fixed to a lid, one of the first and second elements being a loop element and the other of the first and second elements being a hook element. The loops and the hooks of the loop and hook elements are arranged to co-operate mutually.

[0005] Loop and hook elements are sold, for example, in the form of strips under the trademark Velcro® and are in widespread use as fastener means. The hooks of the hook element may be made, for example, by molding a plastics material. The loops of the loop element may be formed, for example, by a woven or non-woven fabric. The hooks and the loops may co-operate to catch together, with at least some of the hooks becoming engaged in the loops.

[0006] The term "hook" should not be understood in a limited sense, and should be understood to cover ends having two hooks and/or an enlarged head. Similarly, the term "loop" should not be interpreted in a limited sense, and should be understood to cover loops that are open or closed. Thus, the first and second elements have hooking means of complementary types distributed over their surfaces and suitable for catching together mechanically when the first and second elements are united.

[0007] Exemplary embodiments of the invention make it possible to provide a hinge that does not require the use of a metal pin, unlike conventional hinges.

[0008] Exemplary embodiments of the invention make it possible to provide a box in which the lid can, if necessary, be completely separated from the base portion. Thus,

embodiments of the invention make it possible, for example, to use a plurality of base portions in association with a common lid. Such a lid may include, for example, a mirror. Such various base portions may contain substances having different colors and/or natures, and/or may contain different applicators.

[0009] In exemplary embodiments, a single base portion may be used with the lid. In other exemplary embodiments, a plurality of base portions may be used with the same lid. In embodiments, the base portions may be superposable such that at least one of the base portions serves as a lid for another base portion thereunder.

[0010] Throughout the following description, the terms "rear", "front", "top", and "bottom" refer to the box when observed in the closed state and the hinge is situated further back from the observer, the box being opened initially by causing the lid to tilt upward and rearward. However, these terms are for the sake of description only, and are not intended to be limiting.

[0011] In exemplary embodiments, the base portion has rear and top faces. In embodiments, the first element may extend over the rear and top faces. In exemplary embodiments, the lid has rear and bottom faces. In embodiments, the second element may extend over the rear and bottom faces so as to co-operate with the first element.

[0012] In exemplary embodiments, the box may comprise at least one third element on the top face of the base portion. Further, in embodiments, the box may comprise at least one fourth element on the bottom face of the lid. One of the third and fourth elements may be a loop element while the other of the third and fourth elements is a hook element. In such embodiments, the third and fourth elements may be disposed in such a manner as to catch together when the box is in a closed position.

[0013] In exemplary embodiments, the base portion has a bottom face. In embodiments, the box may comprises at least one fifth element on the bottom face. In such embodiments, the fifth element may be a loop element or a hook element.

[0014] In exemplary embodiments, the fifth element is complementary to the third element. In such embodiments, the fifth element may be positioned on the bottom face of the base portion in such a manner as to be capable of catching onto at least one other third element on a base portion positioned beneath the bottom face. On the bottom face of the base portion, the box may include at least one sixth element arranged to catch with another first element of a base portion disposed beneath the bottom face. This may enable the base portions to be joined together.

[0015] In exemplary embodiments, the first element may comprise at least two distinct portions. For example, the first element may comprise two portions disposed close to respective opposite side faces of the base portion. The two distinct portions may be of the same kind, or may be complementary. The second element may comprise at least two distinct portions disposed on the lid in corresponding manner.

[0016] In exemplary embodiments, the first element may have at least one fraction which extends over the top face of the base portion. In embodiments, the fraction may be of non-constant width. For example, the width of the fraction may increase on approaching the rear face of the base portion. This may make it easier to open the box, where appropriate.

[0017] In exemplary embodiments, the first element may include fractions fixed on surfaces that are substantially planar. In exemplary embodiments, the first element may include at least one fraction fixed on a surface that is not planar. For example, the first element may include at least one fraction fixed on a circularly cylindrical surface.

[0018] In exemplary embodiments, one of the lid and the base portion may include a tab having a loop element or a hook element and the other one of the lid and the base portion may include a portion for catching onto the tab.

[0019] In exemplary embodiments, the first element may extend partially over at least one side face of the base portion and the second element may extend partially over at least one side face of the lid. This may enable the lid to be assembled to the side of the base portion after the box has been opened. In exemplary embodiments, the first element may extend simultaneously over the top face, the rear face, and at least one side face of the base portion.

[0020] In exemplary embodiments, the base portion and the lid may each have an outline that is rectangular or otherwise. For example, the base portion and the lid may each have an outline that is circular when observed from above. Further, the first and second elements may extend over respective fractions of the circumference of the base portion and the lid. Such fractions may each correspond, for example, to at least one-fourth of the circumference.

[0021] In exemplary embodiments, at least one of the first and second elements may be fixed at least in part in a setback in the base portion and/or in the lid. In embodiments, a hook element is preferably fixed in a setback of the base portion and/or the lid. The depth of the setback may be sufficient to ensure that the hooks do not project significantly outside the setback.

[0022] In exemplary embodiments, at least one of the base portion and the lid may include a portion in relief arranged to co-operate with a complementary portion in relief on the other one of the lid and the base portion so as to ensure that the lid is always substantially positioned in the same manner relative to the base portion when the box is closed.

[0023] In exemplary embodiments, the base portion may also include a portion in relief on a bottom face thereof. The portion in relief may be arranged to co-operate with a portion in relief on the top face of another base portion so as to position the other base portion relative to the first.

[0024] In exemplary embodiments, the base portion may include a housing for receiving one at least one substance. For example, the housing may receive a substance contained in a dish. In exemplary embodiments, the base portion may include a housing for receiving at least one applicator. The bottom of the housing may include a hook element and/or a loop element arranged to hold the applicator.

[0025] In exemplary embodiments, the lid may include a mirror. For example, the lid may include a mirror on a bottom face thereof.

[0026] Exemplary embodiments of the invention provide a base portion or a lid, considered in isolation.

[0027] Such a base portion or such a lid may be sold separately, such as, for example, in a blister pack. For example, in embodiments, the base portion or lid may be sold separately as a refill or as a spare lid, or as an accessory in order to enable a user who already possesses a box comprising a lid and a base portion to add at least one second base portion thereto.

[0028] In exemplary embodiments, the hook elements or loop elements on one of the outside faces of the box can serve, where appropriate, to reduce the risk of the box moving while being carried about in a handbag or vanity case, for example, by providing an appropriate fastener means in the handbag or vanity case.

[0029] In exemplary embodiments, the box may have a flattened shape.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] The invention can be better understood on reading the following detailed description of non-limiting embodiments thereof, and on examining the accompanying drawings, in which:

[0031] Figure 1 is a diagrammatic perspective view of an exemplary embodiment of a box according to the invention;

- [0032] Figure 2 is a diagrammatic and fragmentary section view on II-II of Figure 1;
- [0033] Figure 3 is a bottom plan view as seen looking along arrow III of Figure 1;
- [0034] Figure 4 shows exemplary box of Figure 1 in a closed position, with a second base portion under the first;
- [0035] Figure 5 is a diagrammatic and fragmentary section view showing the connection between the rear portions of the various base portions of the exemplary box of Figure 4;
- [0036] Figure 6 shows an exemplary embodiment of a box with a visible clasp;
- [0037] Figure 7 is a diagrammatic and fragmentary perspective view showing an exemplary embodiment of a hinge element comprising two portions;
- [0038] Figure 8 is a diagrammatic and fragmentary section view showing an exemplary embodiment of the rear of the base portion;
- [0039] Figure 9 is a diagrammatic and fragmentary section view showing an exemplary embodiment with a hinge element of different width;
- [0040] Figure 10 is a diagrammatic perspective view showing another exemplary embodiment of a box according to the invention;
- [0041] Figure 11 is a diagrammatic and fragmentary view showing an exemplary embodiment of a box having loop elements or hook elements on at least three faces of the base portion or the lid;
- [0042] Figure 12 is a diagrammatic plan view showing another exemplary embodiment of a box according to the invention;
- [0043] Figures 13 and 14 are diagrammatic and fragmentary views showing two base portions that may catch together laterally or longitudinally in accordance with an exemplary embodiment of the invention;
- [0044] Figure 15 is a diagrammatic and fragmentary section view showing a setback with a chamfer;
- [0045] Figure 16 is a diagrammatic and fragmentary section view showing a loop element or a hook element provided on the bottom of a housing for receiving an applicator;
- [0046] Figure 17 is a diagrammatic perspective view showing a clasp in accordance with an exemplary embodiment of the invention;
- [0047] Figure 18 is a diagrammatic perspective view showing an exemplary embodiment of a box according to the invention in which the hinge extends over the entire width of the base portion and the lid;

[0048] Figure 19 is a diagrammatic and fragmentary view showing a way of positioning the lid on the base portion during initial assembly of the box; and

[0049] Figure 20 is a diagrammatic perspective view illustrating movement of at least one of the first and second elements.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0050] Figure 1 shows a box 1 comprising a base portion 2 and a lid 3 hinged to the base portion 2 by a hinge. In the exemplary embodiment, the hinge comprises two elements 4 and 5 fixed respectively to the base portion 2 and to the lid 3.

[0051] As shown in Figure 2, the first element 4 may extend over the rear and top faces 6 and 7 of the base portion 2. The second element 5 may extend over the rear face 8, the top face 9 and the bottom face 10 of the lid.

[0052] According to exemplary embodiments of the invention, one of the elements 4 and 5 is an element having one or more hooks 14 and the other is an element having one or more loops 13. In the exemplary embodiment shown, the first element 4 comprises a hook element and the second element 5 comprises a loop element. However, the opposite situation is also contemplated by the invention.

[0053] The hook and loop elements 4 and 5 may be implemented, for example, as pieces of Velcro® strips of different kinds, adhered respectively to the base portion 2 and the lid 3. The hook and loop elements 4 and 5 may also be fixed to the base portion 2 and the lid 3 in some other way, for example, by heat sealing or by snap-fastening.

[0054] In the exemplary embodiment shown, a fraction 4a of the first element 4 which extends over the top face 7 of the base portion 2 is disposed in a setback 12 thereof. The setback 12 may extend in a centered manner over substantially one-third of the length of the rear face 6.

[0055] Fractions 5a and 5c of the second element 5 may extend respectively over the top face 9 and the bottom face 10 of the lid 3, and may be disposed in corresponding setbacks. Only the setback 15 receiving the fraction 5c is visible in Figure 1.

[0056] The second element 5 may have substantially the same width as the first element 4 and the two elements 4 and 5 may co-operate during opening of the box so as to keep the lid 3 secured to the base portion 2, while enabling the lid 3 to pivot backward relative to the base portion 2.

[0057] The lid 3 may also be separated, if so desired, from the base portion 2 by exerting a sufficient force.

[0058] In the exemplary embodiment shown, the box 1 may be held in a closed position by co-operation between at least one third element 20 on the base portion 2, for example, two third elements 20, and at least one fourth element 21 on the lid 3, for example, two fourth elements 21.

[0059] In the exemplary embodiment shown, the third elements 20 are hook elements, while the fourth elements 21 are loop elements. However, the opposite configuration is also contemplated by the present invention.

[0060] In the exemplary embodiment shown, each third element 20 occupies a front corner of the base portion 2, being generally triangular in shape when viewed from above. The fourth elements 21 may be placed in the front corners of the lid, for example, so as to catch onto the third elements 20 when the box is closed.

[0061] Means may be provided for positioning the lid 3 relative to the base portion 2 when the box 1 is closed.

[0062] In the exemplary embodiment shown, the means comprise a step 24 formed on the base portion 2 so as to define a housing 33 and a corresponding rib 26 formed on the lid 3. The rib 26 may be arranged to engage inside the step 24 when the box 1 is closed. The step 24 may be substantially square in outline when the base portion 2 is viewed from above, for example.

[0063] The step 24 may have a flank that is at right angles, as shown in Figure 2. Alternatively or additionally, the step 24 may have a flank that has a chamfer, as shown in Figure 15.

[0064] In the exemplary embodiment of Figures 1 and 2, the box 1 has only a single base portion 2. However, the present invention also contemplates a box comprising a plurality of base portions, for example, two superposed base portions 2 and 2', as shown in Figure 4.

[0065] The base portions 2 and 2' may be secured to each other, for example, by providing a fifth element 30, which may be a loop element, on the bottom face 26 of the base portion 2. The fifth element 30 may be disposed in such a manner as to be capable of catching onto the fraction 4a of the first element 4 of the base portion 2', which may be identical to the base portion 2, as shown in Figure 5.

[0066] The base portion 2 may have a projecting portion 32 arranged on a bottom face 66 thereof to engage in the housing 33 so as to ensure that the base portions 2 and 2' are always positioned in the same manner one on the other. Each base portion 2 or 2' may

advantageously include on the bottom face 66 thereof, not only the fifth element 30, but also a sixth element 40, for example, two sixth elements 40, disposed in such a manner as to catch onto the third elements 20 of the base portion 2' disposed immediately below, as shown in Figure 3.

[0067] Where appropriate, a clasp 50 may be provided on a front side of the box 1. For example, the clasp 50 may comprise a fixed portion 51 on the front face 52 of the base portion 2 and a flexible tab 53 that is fixed via a top end 54 to the front face 55 of the lid 3 and has a bottom end 56 suitable for being superposed on and catching onto the fixed portion 51 when the box is closed. The portions 51 and 53 of the clasp 50 may be made, for example, using strips of Velcro®.

[0068] In the exemplary embodiments of Figures 1 to 6, the base portion 2 has a housing 60 which receives a dish 61, for example, a metal dish, containing a substance P, for example, foundation makeup, and the lid 3 has a mirror 63 in a bottom face thereof.

[0069] The present invention contemplates that the lid 3 may have no mirror and that the base portion 2 may have a housing arranged in some other manner, for example, to receive an accessory such as a brush or a flocked applicator, rather than or in addition to a dish containing a substance. Indeed, the present invention contemplates that the base portion 2 may have a plurality of housings containing various substances, accessories and/or applicators. Such housings may be of a variety of shapes.

[0070] Figure 16 shows a hook or loop element 90 on the bottom of the housing for receiving an applicator. The hook or loop element 90 may serve to catch onto the applicator. For example, the applicator may be provided with an applicator element having loops or hooks that are themselves capable of catching onto the hook or loop element 90. Alternatively or additionally, an element that is complementary to the hook or loop element 90 may be disposed on the applicator, for example, on the handle of the applicator.

[0071] The box may also be made using a different clasp. For example, the clasp may comprise a tab 80 arranged to snap into a corresponding housing 81, as shown in Figure 17.

[0072] The hinge connecting the lid 3 to the base portion 2 may be made differently from that illustrated by the exemplary embodiment of Figures 1 to 6.

[0073] The first and second elements 4 and 5 may extend, for example, over substantially the entire width of the rear faces of the lid 3 and the base portion 2, as shown in Figure 18.

[0074] The first and second elements 4 and 5 may each comprise two portions.

[0075] For example, Figure 7 shows the rear face 6 of the base portion 2. As shown in Figure 7, the first element 4 may comprise two portions 4' and 4" situated, for example, close to the side faces of the base portion 2.

[0076] In the exemplary embodiment shown, the portions 4' and 4" are received in respective setbacks 12' and 12" of the base portion 2. The setbacks 12' and 12" may be of a depth corresponding substantially to the thickness of the backing to which the loops or the hooks of the first element 4 are connected, as shown in Figure 7.

[0077] The rear face 6 of the base portion 2 may also be made with a shape that is outwardly convex. For example, the rear face 6 of the base portion 2 may carry a rib 70 that defines a bulging surface 71, for example, in the form of half a circular cylinder, on which the first element 4 is fixed.

[0078] At least one of the first and second hinge elements 4 and 5 may be of varying width. For example, Figure 9 shows the base portion 2 with a first element 4 that has width which increases on approaching the rear face 6, for example, in order to make it easier to open the box 1. The fraction 4a of the first element 4 may be received in a housing 12 of corresponding shape, for example, having a perimeter that is substantially trapezoidal in shape.

[0079] In embodiments in which the first element 4 is made as two portions 4' and 4", and the second element comprises two corresponding portions 5' and 5", each of the portions may extend not only over the rear faces of the base portion 2 and the lid 3, and over the top face of the base portion 2 and the bottom face of the lid 3, but also over the side faces of the base portion 2 and the lid 3, as shown in Figure 10, thus making it possible, for example, to assemble the base 2 and the lid 3 side by side after the box 1 has been opened.

[0080] The loop and hook elements used for assembling a base portion with another base portion or with a lid in at least two directions can also be distinct, as shown in Figure 11.

[0081] The base portion 2 and the lid 3 need not be generally in the form of a rectangular parallelepiped. For example, the base portion 2 and the lid 3 may be of a shape having a perimeter that is curvilinear when the box 1 is viewed from above. For example, the base portion 2 and the lid 3 may be of a shape having a perimeter that is oval or circular, as shown in Figure 12.

[0082] As shown in Figure 12, the first element 4 may extend over half of the circumference of the base portion 2 and the second element 5 may extend over half of the circumference of the lid 3, for example.

[0083] The disposition of the first and second elements 4 and 5 may enable the first and second elements 4 and 5 to catch together tangentially.

[0084] In the exemplary embodiment of Figure 10, both of the portions 4' and 4" are loop portions while the portions 5' and 5" are hook portions. In other embodiments, both of the portions 4' and 4" may be hook portions with the portions 5' and 5" both being loop portions. Furthermore, one of the portions 4' may be a loop portion and the other portion 4" may be a hook portion so as to enable a plurality of base portions to be assembled together side by side as shown in Figure 13, or so as to enable two base portions 2 and 2' to be placed one in line with the other, as shown in Figure 14.

[0085] Figure 19 illustrates possible positioning of the lid 3 on the base portion 2 during initial assembly thereof. The front edges may be brought into contact with each other, the rib 26 of the lid bearing against the step 24, and then the lid may be pivoted in the direction of the arrow.

[0086] At least one of the first and second elements 4 and 5 may be movable relative to the corresponding portion of the box.

[0087] Thus, for example, the first element 4 may be movable relative to the base portion 2, as shown in Figure 20.

[0088] As shown in Figure 20, the first element 4 is fixed on a roller 95 hinged to the base portion 2 by a pin (not shown) that extends between two lugs 96 that extend the base portion 2 rearward.

[0089] It should be understood that the invention is not limited to the exemplary embodiments described above. For example, the present invention contemplates various combinations of the characteristics of the various embodiments described above.

[0090] Throughout the description, including in the claims, the term "comprising a" should be understood as being synonymous with "comprising at least one", unless specified to the contrary.

[0091] Although the present invention herein has been described with reference to particular embodiments, it is to be understood that these embodiments are merely illustrative of the principles and applications of the present invention. It is therefore to be understood that numerous modifications may be made to the illustrative embodiments and that other

arrangements may be devised without departing from the spirit and scope of the present invention.